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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/827,275	04/20/2004	Kuo-Rong Chen	OP-093000042	2655
7590 12/15/2005			EXAMINER	
Yi-Wen Tseng 4331 Stevens Battle Lane Fairfax, VA 22033			QUARTERMAN, KEVIN J	
			ART UNIT	PAPER NUMBER
			2879	

DATE MAILED: 12/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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<b>Office Action Summary</b>	Application No. 10/827,275	Applicant(s) CHEN ET AL	
	Examiner Kevin Quarterman	Art Unit 2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 November 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) 16-23 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☒ Claim(s) 4 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 April 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>0404</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election without traverse of Group I, claims 1-15, in the reply filed on 14 November 2005 is acknowledged.
2. Claims 16-23 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 14 November 2005.

### ***Specification***

3. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: Claim 4 recites "a second access unit under the first access unit within the receiving space." There is no mentioning of any access units or receiving space in the original disclosure.

### ***Drawings***

4. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: Reference characters "341" of Figs. 3, 5, and 7; reference characters "34" and "341" of Fig. 6; reference character "51" of Fig. 8; and reference character "51" of Fig. 9.

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5. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement-drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

#### ***Claim Objections***

6. Claim 4 is objected to because of the following informalities: Claim 4 recites the limitations "the first access unit" and "the receiving space" in the second line of the claim. There is insufficient antecedent basis for these limitations in the claim. Appropriate correction is required.

#### ***Claim Rejections - 35 USC § 102***

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claims 1-5, 7, and 9-15 are rejected under 35 U.S.C. 102(e) as being anticipated by Lee (US 6,617,798).

9. Regarding independent claim 1, Figure 3 of Lee shows a field emission display comprising an anode plate (10), including a phosphor layer (24b) formed thereon; a cathode plate (8), including an electron emission source layer (18) aligned with the phosphor layer; a mesh including a gate layer (20) facing the electron emission source, a converging electrode plate (22) facing the phosphor layer, an insulation layer (6) sandwiched between the gate layer and the converging electrode layer, and a plurality of apertures (6a) extending therethrough; and a spacing glass plate (4) extending between the anode plate and the converging electrode plate.

10. Regarding claim 2, Figure 3 of Lee shows an isolation wall or a spacer (2) extending between the gate layer and the cathode plate.

11. Regarding claim 3, Figure 3 of Lee shows the isolation wall configured between the apertures.

12. Regarding claim 4, Figure 3 of Lee shows a second access unit (area beneath gate layer 20) under a first access unit (area above converging electrode plate 22) within the receiving space.

13. Regarding claim 5, Figure 6 of Lee shows the mesh comprising an invalid region along a periphery of the converging electrode layer, and the invalid region including a plurality of markings for alignment (col. 5, ln. 43-45).

14. Regarding claim 7, Figure 3 of Lee shows the apertures opening at the gate layer with a gauge larger than a diagonal length of the electron emission source layer.

15. Regarding claim 9, Figure 3 of Lee shows the apertures opening at the gate layer with a gauge larger than a diagonal length of the electron emission source layer.

16. Regarding claim 10, Lee discloses the converging layer having a potential lower than that of a drain potential applied to the gate layer (col. 5, ln. 60).

17. Regarding claim 11, Figure 3 of Lee shows an isolation wall (24a) extending between the spacing glass plate and the anode plate.

18. Regarding independent claim 12, Figure 3 of Lee also shows a field emission display comprising an anode substrate (10) on which a plurality of anode units (24) is formed, each of the anode units includes an anode conductive layer (24c) and a phosphor layer (24b) formed on the anode conductive layer; a cathode substrate (8) on which a plurality of cathode units is formed, each of the cathode units includes a cathode conductive layer (16) and an electron emission source layer (18) formed on the cathode conductive layer; and a mesh (6) extending between the anode substrate and the cathode substrate, wherein the mesh includes a gate layer (20) facing the cathode unit and a converging electrode layer (22) facing the anode unit, and the mesh also including a plurality of apertures (6a) aligned with respective sets of anode and cathode units.

19. Regarding claim 13, Figure 3 of Lee shows an insulation layer (6) sandwiched between the gate layer and the converging electrode layer.

20. Regarding claim 14, Lee discloses the mesh fabricated from a material with a thermal expansion coefficient substantially the same as that of the anode substrate and the cathode substrate (col. 4, ln. 26-30).

21. Regarding claim 15, Figure 3 of Lee shows the apertures opening at the gate layer with a diameter no smaller than a diagonal extent of the electron emission source layer.

***Claim Rejections - 35 USC § 103***

22. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

23. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

24. Claims 6 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee (US 6,617,798) in view of Janning (US 5,955,833).

25. Regarding claim 6, Lee teaches the limitations of independent claim 1 discussed earlier but fails to exemplify the apertures having inverse conical shapes.

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26. Figure 2 of Janning shows that it is known in the art to provide field emission displays with a plurality of apertures (28) having inverse conical shapes extending through an insulation layer (24a) sandwiched between a gate layer (40') and a converging electrode layer (40a) for passing electrons emitted from the emitters to the phosphors (col. 5, ln. 12-13).

27. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the apertures of Lee with inverse conical shapes, as taught by Janning, for allowing emitted electrons to excite the phosphor layer.

28. Regarding claim 8, Figure 2 of Janning shows the apertures having sandglass shapes.



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**Contact Information**


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Quarterman whose telephone number is (571) 272-2461. The examiner can normally be reached on M-TH (7-5:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on (571) 272-2457. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kevin Quarterman  
Examiner  
Art Unit 2879

kq   
12 December 2005

  
Joseph Williams  
Primary Examiner  
Art Unit 2879